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ABSTRACT

Designed to investigate the existing attitudes of students and instructors toward the computer managed instruction (CMI) learning environment, this research project also identified factors relating to these attitudes. Questionnaires were developed and administered to 100 instructors and 255 trainees from five schools taught under the CMI system. In general, trainee and instructor questionnaires contained items exploring attitudes toward the CMI system in the learning environment, demographics, interactions with instructors or students, and motivations. Response data were analyzed using descriptive and inferential statistics. Results of the study indicated that trainees' attitudes toward the CMI system in the learning environment were generally favorable, while those of instructors were generally not favorable. The study also revealed that trainees' length of service with the Navy appears to be related to attitudes toward the CMI system in the learning environment: the longer the trainee is in the service, the more negative the individual tends to be toward the system. Copies of the student and instructor questionnaires are appended and 13 references are listed. (Author/LLS)

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COMPUTER-MANAGED INSTRUCTION IN NAVY TECHNICAL TRAINING: AN ATTITUDINAL SURVEY

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FOREWORD

This research was sponsored by the Deputy Chief of Naval Operations (Manpower, Personnel, and Training) and was conducted within independent research program, PE61152N, under work unit ZR000-01-042-04.01.04 (Unobtrusive Measures of Attitude). The purpose of this study was to investigate the attitudes of Navy instructors and students toward computer-managed instruction (CMI). Results are for use by the Chief of Naval Technical Training (CNTT) in identifying areas where attitude improvement efforts would facilitate operation of the Navy's CMI system.

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INTRODUCTION

Problem

The administration and management of extensive individualized instruction (II) has benefited from computer-based instruction (CBI), a training approach now proliferating within the Department of Defense (DoD).

This relatively new methodology has proven to be effective in several ways. A number of studies (e.g., Ford, Slough, & Hurlock, 1972; Fredericks & Hoover-Rice, 1977; Hurlock, 1972; Hurlock & Lahey, 1971) have not only indicated that student achievement is about the same or superior for CBI when compared to conventional lock-step modes of instruction, but also training time is reduced.

Despite the potential benefits of CBI technology, there is a widely held opinion, expressed by training managers at all levels, that students and instructors are negative toward CBI (King, 1975). Although information regarding the attitudes of both instructors and students has been of interest to researchers and training managers, most attitude data have not been collected in any consistent fashion. Most data reported have been incidental to broader research plans. Rarely have attitudes been the primary focus of research. Nevertheless, this body of data has indicated that students are generally accepting of CBI (Ford & Slough, 1970; Ford et al., 1972; Fredericks & Hoover-Rice, 1977; Hurlock & Lahey, 1971; Lahey, Crawford & Hurlock, 1976). Contrarily, instructor data, although limited, suggest that instructors are less favorable toward CBI (briefing material AFHRL-TT, Lowry Air Force Base, 1978, cited by Orlansky & String (1979)).

Verification of this information is imperative since attitudes can adversely affect the way in which students approach their task, the competencies they build, and the rate at which they complete training. Also, instructors' attitudes not only can affect themselves, but also have a great impact on the students (Tatsuoka, 1978). Such attitudes can be an impediment to the adoption of a potentially successful program.

An accurate assessment of Navy instructor and student attitudes toward the current computer-managed instructor (CMI) system could lead to the identification of significant problem areas resulting from the use of CBI in naval training.

Purpose

The main objective of this research project was to assess the existing attitudes of students and instructors toward the CMI learning environment. In addition, an attempt was made to identify factors relating to these attitudes. Such information would, undoubtedly, be profitable to school managers and future research and development projects.

Background

Recently, a considerable amount of effort has been directed by the military services to the development and evolution of various modes of CBI. CBI includes both computer-assisted instruction (CAI) and CMI. In CAI, instruction is accomplished by means of a dialogue between computer and student. All instructional materials are stored in the computer. The computer is capable of performing tutorial, diagnostic, and remedial functions. In CMI, self-paced instruction takes place away from the computer. Basically, the computer is capable of scoring tests, assigning lessons and remedial exercises, and handling records and administrative data.

Although this present research is concerned primarily with verifying attitudes of those participating in CBI or, more specifically, in a CMI environment, the following research is described briefly to help clarify either implicitly or explicitly why negative attitudes toward the CMI system do exist.

Baker (1978) describes how the school-as-a-factory model, borrowed from scientific management theory, is the essence of the instructional models employed by most CMI systems:

> The unit-of-instruction cycle is basically a production cycle. The product is a completed curricular unit, and the standard of work is set by a criterion-referenced test. (Ch. 6).

At the instructional level, teachers are allocated managerial functions (Baker, 1978). Baker stresses that an unfortunate result of adopting the management philosophy to CMI is that the teacher is assigned low-level managerial functions--a role similar to a production line worker:

> The teacher provides the student with the raw materials, work sheets, books, etc., monitors the student via tests, and evaluates whether the standard product has been produced. When the student does not produce the standard product, the teacher uses diagnostic procedures to determine the problems, prescribes additional resources, and sets the student in motion again. (pp. 271-272).

Baker also expresses the belief that the nature of the teacher's role as a manager should be expressed explicitly so that teachers can prepare for the role.

McCombs and Dobrovolny (1980) gives a theoretical view of which instructor roles are appropriate in CBI classrooms. Their listing of roles was broader than that cited by Baker and emphasizes higher level management functions, such as counselor/advisor, learning strategies expert, and tutor/counselor.

King (1975), through an assessment of relevent literature and personal communications, has evaluated pertinent factors that influence attitudes toward various forms of CBI instruction. King suggests that role change is the biggest adjustment an instructor is required to make in a CBI system.

Steward and Love (1970) concluded that anxiety created by an unpredictable role change was relieved when the role expectations of the instructors were confirmed.

Despite the varied theoretical rationales available to explain the possible sources of CMI instructor dissatisfacion, none of the theories have been validated by a systematic assessment of instructors' attitudes toward CMI. Such an assessment effort would not only enable researchers to verify the validity of current viewpoints on CMI instructor attitudes, but would point to areas where any necessary corrective action would be most effective.

METHOD

Subjects

Subjects consisted of 100 instructors and 255 enlisted trainees enrolled in CMI courses. These subjects represented a variety of learning centers. Distribution of these subjects by school is shown in Table 1.

Table 1

Distribution of Subjects by CMI School

Location	School	Students		Instructors	
		Number	Percent	Number	Percent
San Diego	Radioman (RM) "A" School	34	13.3	18	16.8
	Basic Electricity and Electronics (BE/E)	69	27.0	24	22.4
Memphis	Basic Electricity and Electronics (BE/E)	48	18.8	20	18.7
	Avionics Technican "A" School (AVA)	52	20.4	19	17.8
	Aviation Machinists Mate "A" School (ADA)	52	20.4	19	17.8
		255	99.9	100	100.0

[a]Percentages do not always equal 100 percent due to rounding.

Questionnaire Characteristics

Questionnaires for students and instructors (see Appendix A) were developed to be administered to either CMI or II courses. Items were grouped into the following five sections:

1. Features of CMI/II. Respondents were presented with a list of CMI/II features and asked to rate them as to how they affected learning. Items in this scale were based on prior interviews with CMI instructors and review of student CMI course evaluation forms, and were designed to assess instructor and student perceptions of the Navy CMI/II instructional environment.

2. Instructor/Student Rating Scale. Most of the items in this scale were designed to provide a description of instructors' or students' general academic and social characteristics taken from the other's viewpoint. The remainder were designed to assess instructors'/students' self-perception of their interactions with others and their academic self-discipline.

3. CMI/II Rating Scale. Items in this section were designed to survey attitudes regarding CMI as a medium of instruction.

4. Least Preferred Co-worker Scale. Items in this scale were included in an effort to identify the working style and optimum working conditions of individual instructors and students. (For additional information regarding this scale, refer to Fiedler, Chemers, & Mahar (1977)).

5. Identification Questions. These items were included to obtain demographic and CMI-related academic experience information.

Only those items discussed in paragraphs 1, 3, and 5 above are pertinent to the present research. The remaining items, which were originally included to obtain baseline data for a future unobtrusive attitude measurement project, were designed to provide information on the general academic perceptions, expectations, and working styles of individual instructors and students.

Procedure

A NAVPERSRANDCEN researcher administered questionnaires to trainees and instructors approximately midway through a CMI course.[1] Questionnaires were presented in booklet format, and each subject recorded his/her responses in the booklet. Instructions on how to complete the questionnaire were included in the booklet but also read to the subjects by the researcher at each testing session.

Analyses

1. Descriptive statistics were derived for instructors' and students' responses to the various items.

2. Instructors' and students' responses to analogous items from the CMI/II rating scale were compared using a chi-square analysis.

3. Possible relations between demographic data and items pertaining to CMI as a medium of instruction were explored.

4. The morning and evening classes at the two BE/E schools were compared.

RESULTS

In the following tables, responses are collapsed over schools for each item. Response data for individual schools can be found in Appendix A.

CMI/II Rating Scale

Tables 2 and 3[2] provide responses of students and instructors respectively to the items pertaining to the use of CMI as a medium of instruction. For each item, chi-square analyses were performed on agree and disagree responses. Table sections indicate those items with (1) significantly higher agree responses, (2) significantly higher disagree responses, and (3) agree and disagree responses that were not significantly different.

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[1]Questionnaires were also administered at the Training Deviceman (TD) school, located in Memphis. However, since the TD course was II but not computer-based, data from this school were not included in the present study.

[2]Because of the large number of tables in this section relative to the amount of text, the tables and the figures are provided at the end of the section commencing on page 7.

Instructors' and students' responses were compared on 15 analogous rating scale items divided into four categories. Table 4, which provides the percent of each group who agreed or disagreed with each item, shows that the two groups differed significantly on 12 of the items. Students showed more favorable attitudes toward particular aspects of the CMI experience than did instructors. Items within the four categories are discussed below:

1. Acquisition of Knowledge. The items within this category were concerned with how CMI relates to the learning process. As shown, for the first two items listed, there were considerable differences between students' and instructors' responses. A large percentage of the instructors does not agree that CMI ensures that students learn the concepts in each unit or that it enables them to learn a lot of information in a short time. The opposite was true for students. The largest percentage of both groups felt that CMI places more emphasis on completing a module than on acquiring a skill or knowledge.

2. Computer Management. Items within this category acknowledge the managerial capabilities of the CMI system. The largest percentage of both instructors and students agreed that the CMI system takes care of the course paperwork and record keeping efficiently and informs the student when he or she has successfully completed a unit. Most students agree that CMI provides a detailed description of what is expected from students taking the training. However, instructors are equally divided in their responses to this item.

3. Instructional Aid. Items within this category are concerned with the educationally facilitating aspects of CMI. The larger percentage of students agree that CMI frees the instructors to do better one-to-one teaching, allows students to progress at their best rate, presents the subject matter in a way that is easily understood, and gives useful feedback on how to correct mistakes made on a test. However, the majority of instructors do not agree with these items. The majority of both instructors and students did not agree that CMI meets the individual needs of the students.

4. Motivation. Items within this category assess the motivating qualities of CMI. The majority of both instructors and students disagreed that CMI helps the training to be more enjoyable. Although most students agreed that CMI removes pressure to compete with other students, the instructors were almost equally divided in their responses to this item. The majority of both groups agreed that CMI demands more effort than high school. Finally, most students agreed that CMI is more motivating than high school. The opposite was true for instructors.

Students' and instructors' demographic data (Tables 5 and 6) were related to the items assessing their attitudes toward CMI (Table 2 & 3).[3] Chi-square analyses ($p < .05$) indicated that, for students, length of service (LOS) was significantly related ($p < .05$) to 8 of the 19 items assessing attitude toward CMI. These relationships are shown in Figure 1. An additional analysis collapsed responses for 4+ years and 1-3 years to eliminate cells with frequencies less than 5. The general trend indicated that the longer a trainee remains in the service, the more negative the trainee is to CMI.

As would be expected, an instructor's desire to teach another CMI course was related to 15 of the 21 attitudes toward CMI. Those desiring to teach another CMI class tended to be more positive toward CMI.

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[3]Only those identification questions that were related to at least 40 percent of the items in Tables 2 and 3 will be reported.

Features of CMI/II

Table 7 presents data obtained from students and instructors on their perceptions of factors related to Navy CMI. These factors were identified from interviews with instructors and a review of end-of-course student evaluation forms. The item concerning the effect of student housing (berthing) (No. 12) was included due to the strong emphasis it had been given in earlier end-of-course student evaluations.

In summarizing the data, responses were divided into three categories: (1) harmful (including "very harmful" and "somewhat harmful"), (2) useful (including "somewhat useful" and "very useful"), and (3) no important effect/not a true statement for/not applicable to the course.[4] Using 50 percent as a decision point, it was found that students felt that 9 of the 12 perceivable features of CMI were useful, compared to only 4 for instructors.

Comparison of Morning and Afternoon BE/E Students

The chi-square analyses performed to compare the morning and afternoon CMI classes at the two BE/E schools indicated essentially no difference between the two time slots.

Instructor/Student Rating Scale

As previously mentioned, no formal analysis or discussion will be provided for items on instructor/student ratings. However, baseline data for these ratings are presented in Appendix B. Information resulting from these scales may prove helpful to interested researchers in constructing behavioral profiles that reflect the CMI learning climate.

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[4]For some items, this response category alternative was included. In the originally designed study, part of the subject sample was to come from non-CMI courses. Thus, it was considered important to provide an alternative that was meaningful for the non-CMI respondents.

Table 2

Distribution of Students' Responses (N=255) to CMI Rating Scale

CMI Characteristic[a]	% Responses[b,c] Strongly Disagree	Disagree	Agree	Strongly Agree
Items With Significantly Higher Agree Responses				
Ensures that students learn the concepts in each unit. (39)	9.0	31.8	46.7	12.5**
Takes care of the course paper-work and record keeping efficiently. (40)	3.9	3.9	53.5	38.6***
Frees the instructors to do better one-to-one teaching. (42)	8.7	16.5	51.2	23.6***
Allows students to progress at their best rate. (43)	13.7	24.3	39.2	22.7***
Presents the subject matter in a way that is easily understood. (44)	6.3	29.6	51.0	13.0***
Removes pressure to compete with other students. (45)	7.5	31.0	47.5	14.1***
Enables students to learn a lot of information in a short time. (46)	8.3	20.2	52.6	19.0***
Provides a clear step-by-step procedure for learning the material. (48)	5.1	13.8	71.3	9.8***
Places more emphasis on completing a module than on acquiring a skill or knowledge. (49)[d]	6.7	25.7	38.7	28.9***
Informs the student when he or she has successfully completed a unit. (50)	.4	2.0	66.7	31.0***
Gives useful feedback on how to correct mistakes make on a test. (51)	16.1	22.0	46.7	15.3***
Provides a detailed description of what is expected from students taking the training. (52)	5.1	29.4	56.9	8.6***
Is more interesting than high school training. (53)	17.5	25.8	40.1	16.7*
Demands more student effort than high school. (55)	4.3	12.9	47.8	34.8***
Is more motivating than high school. (56)	11.8	22.4	42.4	23.5***
Items With Significantly Higher Disagree Responses				
Helps the training be more enjoyable. (41)	20.9	43.7	29.1	6.3***
Meets the individual needs of each student. (47)	19.7	44.1	32.7	3.5***
Items With Agree and Disagree Responses that are not Significantly Different				
Produces students who are better prepared for their Navy job than other methods of instruction. (38)	17.2	34.8	42.0	6.0
Is better than conventional or lockstep-lecture courses. (54)	13.8	36.6	36.2	13.4

Note. All respondents did not respond to all items.

[a] Numbers in parentheses refer to questionnaire item number.

[b] In computing the chi-square analyses, "strongly disagree" and "disagree" responses were combined into one category; and "agree" and "strongly agree" responses, into a second category. Significance level indicators refer to disagree/agree statistical comparisons.

[c] Totals do not always equal 100 percent due to rounding.

[d] For this item, a high response rating indicates a negative attitude.

*$p < .05$
**$p < .01$
***$p < .001$

Table 3

Distribution of Instructors' Responses (N=100) to CMI Rating Scale

CMI Characteristic[a]	% Responses[b,c] Strongly Disagree	Disagree	Agree	Strongly Agree
Items With Significantly Higher Agree Responses				
Takes care of the course paperwork and record keeping efficiently. (38)	14.1	25.3	46.5	14.1*
Places more emphasis on completing a module than on acquiring a skill or knowledge. (47)[d]	1.0	14.1	35.4	49.5***
Informs the student when he or she has successfully completed a unit. (48)	2.0	4.1	71.4	22.4***
Demands more student effort than high school. (53)	8.0	19.0	45.0	28.0***
CMI courses only: Loses a lot of time due to the computer being "down." (56)	1.0	21.2	27.3	50.5***
Items With Significantly Higher Disagree Responses				
Produces more competent students than other methods of instruction. (36)	40.0	37.0	17.0	6.0***
Ensures that students learn the concepts in each unit. (37)	29.0	43.0	25.0	3.0***
Helps the training be more enjoyable. (39)	36.4	43.4	18.2	2.0***
Allows students to progress at their best rate. (41)	19.2	41.4	31.3	8.1*
Enables students to learn a lot of information in a short time. (44)	20.2	41.4	34.3	4.0***
Meets the individual needs of each student. (45)	30.3	55.6	13.1	1.0***
Produces the same learning outcomes as other systems, but produces them faster. (52)	35.0	40.0	24.0	1.0***
Is more motivating than high school. (54)	28.0	36.0	32.0	4.0**
Contributes to students being better prepared when they get to the fleet or shore assignment than other forms of instruction. (55)	48.5	34.3	14.1	3.0***
Items With Agree and Disagree Responses that are not Significantly Different				
Frees the instructors to do better one-to-one teaching. (40)	29.3	30.3	32.3	8.1
Presents the subject matter in a way that is easily understood. (42)	24.2	35.4	36.4	4.0
Removes pressure to compete with other students. (43)	13.1	37.4	41.4	8.1
Provides a clear step-by-step procedure for learning the information. (46)	13.1	33.3	51.5	2.0
Gives useful feedback on how to correct mistakes made on a test. (49)	18.4	38.8	38.8	4.1
Provides a detailed description of what is expected from students taking the training. (50)	15.0	35.0	46.0	4.0
Is more practical than high school training. (51)	25.0	33.0	35.0	7.0

Note. All respondents did not respond to all items.

[a] Numbers in parentheses refer to questionnaire item number.

[b] In computing the chi-square analyses, "strongly disagree" and "disagree" responses were combined into one category; and "agree" and "strongly agree" responses, into a second category. Significance level indicators refer to disagree/agree statistical comparisons.

[c] Totals do not always equal 100 percent due to rounding.

[d] For this item, a high response rating indicates a negative attitude.

*p < .05
**p < .01
***p < .001

Table 4

Comparison of Attitudes Toward CMI for Students (N=255) and Instructors (N=100)

Category	Item[a]	Group	%Responses[b] Disagree	Agree
	The CMI system:			
Acquisition of Knowledge	Ensures that students learn the concepts in each unit. (37,39)	Student Instructor	40.8 72.0	59.2*** 28.0
	Enables students to learn a lot of information in a short time. (46,44)	Student Instructor	28.5 61.6	71.5*** 38.4
	Places more emphasis on completing a module than on acquiring a skill or knowledge. (49,47)[c]	Student Instructor	32.4 15.2	67.6** 84.8
Computer Management	Takes care of the course paperwork and record keeping efficently. (40,38)	Student Instructor	7.9 39.4	92.1*** 60.6
	Informs the student when he or she has successfully completed a unit. (50,48)	Student Instructor	2.4 6.1	97.6 93.9
	Provides a detailed description of what is expected from students taking the training. (52,50)	Student Instructor	34.5 50.0	65.5* 50.0
Instructional Aid	Frees the instructors to do better one-to-one teaching. (42,40)	Student Instructor	25.2 59.6	74.8*** 40.4
	Allows students to progress at their best rate. (43,41)	Student Instructor	38.0 60.6	62.0*** 39.4
	Presents the subject matter in a way that is easily understood. (44,42)	Student Instructor	36.0 59.6	64.0*** 40.4
	Meets the individual needs of each student. (47,45)	Student Instructor	63.8 85.9	36.2*** 14.1
	Gives useful feedback on how to corect mistakes made on a test. (51,49)	Student Instructor	38.0 57.1	62.0** 42.9
Motivation	Helps the training to be more enjoyable. (41,39)	Student Instructor	64.6 79.8	35.4** 20.2
	Removes pressure to compete with other students. (45,43)	Student Instructor	38.4 50.5	61.6 49.5
	Demands more student effort than high school. (55,53)	Student Instructor	17.3 27.0	82.7 73.0
	Is more motivating than high school. (56,54)	Student Instructor	34.1 64.0	65.9*** 36.0

[a]Numbers in parentheses refer to items in student and instructor questionnaires respectively.

[b]Disagree percentages reflect "strongly disagree" and "disagree" responses; and agree percentages, "agree" and "strongly agree" responses.

[c]For this item, a high response rating indicates a negative attitude.

*p < .05
**p < .01
***p < .001

Table 5

Demographic Data for Students (N=255)

Variable	% Responses[a]
Length in Service:	
8 Months or Less	72.4
9 Months - 1 Year	13.8
1 - 3 Years	9.8
4+ Years	4.1
Prior Experience with Individualized Instruction?	
Yes	64.9
No	35.1
Age:	
17 - 20	63.1
21 - 25	26.5
26 or Older	10.4
Sex:	
Male	90.8
Female	9.2

Note. All respondents did not respond to all items.

[a]Totals do not always equal 100 percent due to rounding.

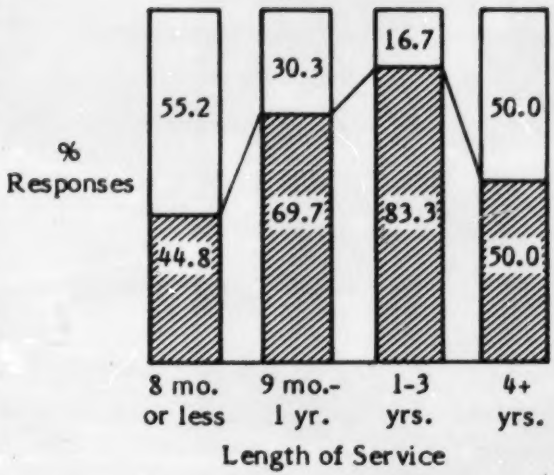
Table 6

Demographic Data for Instructors (N=100)

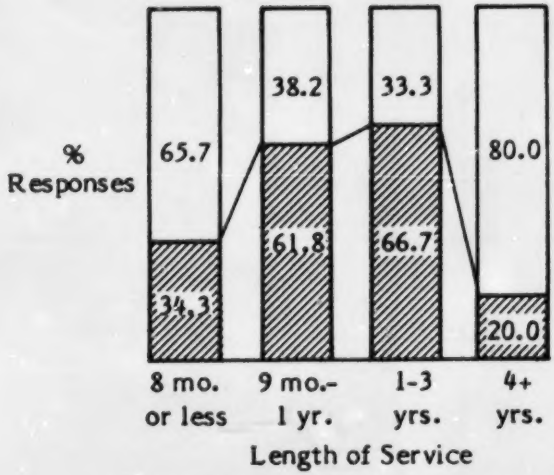
Variable	% Responses[a]
Length in Service:	
1-4 Years	2.0
5-10 Years	48.5
11-16 Years	27.3
16 + Years	22.2
No. of tours of instructor:	
First	90.0
Second	8.1
Third	1.0
More than 3	1.0
Prior experience with instructor training school:	
Yes	94.9
No	5.1
Prior experience with on-site training as an instructor:	
Yes	89.9
No	10.1
Desire to request another extended tour of instructor duty:	
Yes, in CMI	28.3
Yes, not in CMI	50.5
No	21.2
Experience participating as a student in individualized instruction:	
Yes	70.7
No	29.3
Experience teaching course not CMI:	
Yes, lecture/lock step in Navy	33.7
Yes, outside of Navy	3.1
None	63.3
Age:	
21-30	55.6
31-40	39.4
41-50	5.1
Sex:	
Male	99.0
Female	1.0

Note. All respondents did not respond to all items.

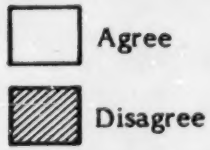
[a]Totals do not always equal 100 percent due to rounding.

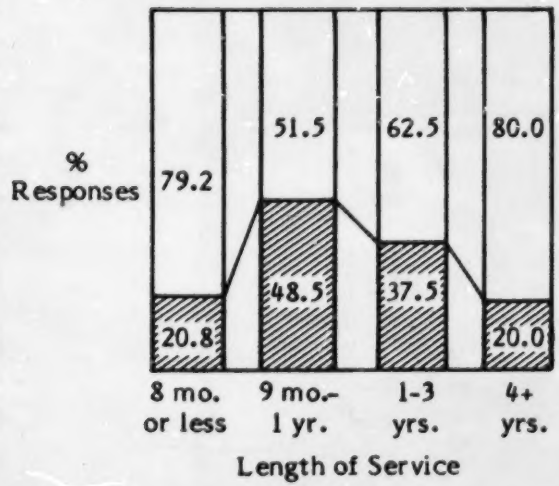


a. The CMI system produces students who are better prepared for their Navy job than other methods of instruction. (38)

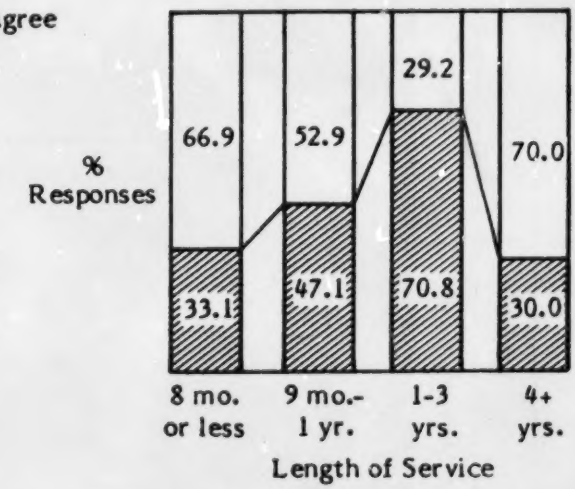


b. The CMI system ensures that students learn the concepts in each unit. (39)



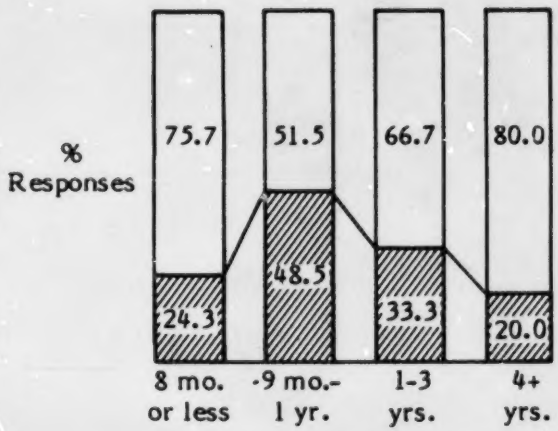


c. The CMI system frees the instructors to do better one-to-one teaching. (42)

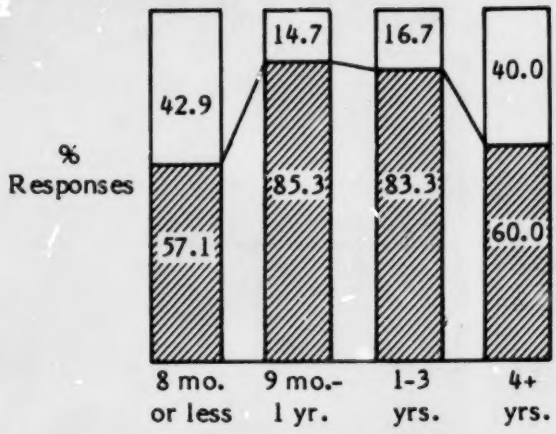


d. The CMI system allows students to progress at their best rate. (43)

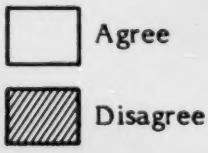
Figure 1. Relationships between length of service and attitudes toward CMI.

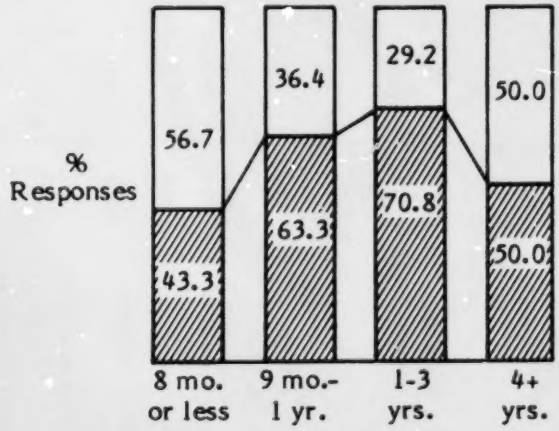


e. The CMI system enables the student to learn a lot of information in a short time. (46)

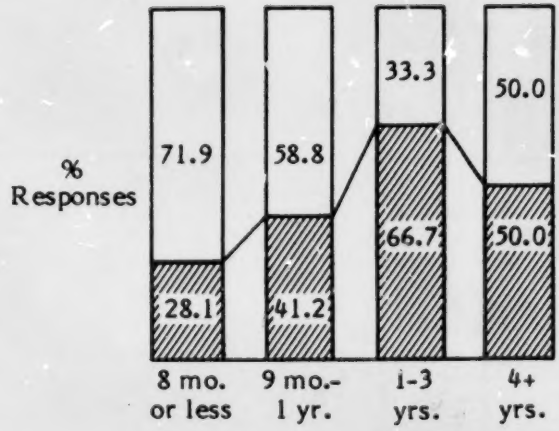


f. The CMI system meets the individual needs of each student. (47)





g. The CMI system is better than conventional or lockstep-lecture courses. (54)



h. The CMI system is more motivating than high school. (56)

Figure 1. (Continued.)

Table 7

Distribution of Responses to Features of CMI

Item	% Responses[a]					
	Very Harmful	Somewhat Harmful	No. Important Effect	Somewhat Useful	Very Useful	No important effect/ Not a True Statement[b] for/Applicable to this Course
Students (N=255)						
1. Frequent tests over material.	0.8	3.1	2.0	31.1	61.0	2.0
2. Absence of class lectures.	18.6	43.1	17.0	7.1	4.3	9.9
3. Students work at a pace predicted by computer.	16.1	35.7	10.6	26.3	11.0	0.4
4. No competition for grades.	7.1	19.2	34.9	14.9	18.8	5.1
5. Short lesson units.	0.4	4.7	16.1	32.5	46.3	--
6. Students work alone to master material.	8.6	37.3	2.7	24.7	26.7	--
7. Student performance data provided by computer.	2.7	9.0	22.7	28.6	36.9	--
8. Use of reading material as a major source of information.	2.7	17.6	7.8	31.4	40.4	--
9. Classroom setting.	5.5	16.1	31.0	25.1	22.4	--
10. Students working at individual study carrels during class.	2.4	14.5	12.9	31.0	39.2	--
11. Use of a computer in the classroom.	3.9	6.7	20.8	30.6	32.2	5.9
12. Student berthing (living in same quarters with other students).	7.9	9.4	22.0	23.2	32.3	5.1
Instructors (N=100)						
1. Frequent tests over material.	2.0	21.0	3.0	39.0	35.0	--
2. Absence of class lectures.	32.0	55.0	8.0	3.0	2.0	--
3. Students work at a pace predicted by the computer.	18.0	41.0	11.0	21.0	9.0	--
4. No competition for grades.	21.0	33.0	29.0	10.0	7.0	--
5. Short lesson units.	2.0	11.0	18.0	44.0	25.0	--
6. Students work alone to master material.	15.0	31.0	9.0	24.0	21.0	--
7. Student performance data provided by computer.	5.0	6.0	18.0	24.0	47.0	--
8. Use of reading material as a major source of information.	7.1	34.3	7.1	30.3	21.2	--
9. Classroom setting.	8.0	22.0	26.0	20.0	24.0	--
10. Isolating students at carrels during class.	12.0	23.0	19.0	24.0	22.0	--
11. Use of a computer as a training aid.	11.0	14.0	10.0	25.0	15.0	25.0
12. Students berthing (living in same quarters with other students)	7.0	14.0	30.0	25.0	20.0	4.0

Note. All respondents did not respond to all items.

[a]Totals do not always equal 100 percent due to rounding.

[b]This alternative category occurred for selected questions.

DISCUSSION AND CONCLUSIONS

1. When trainees and instructors were compared on similar items regarding the use of CMI as a medium of instruction, students tended to be positive toward CMI while instructors were negative. These results were clearly reflected by responses to items that addressed the relation of CMI to the learning process and its educationally facilitating aspects.

2. Slightly more than 70 percent of the instructors had participated in II as a student. Although it is commonly believed that experience with II or CBI fosters positive attitudes toward these systems, the present results do not support this belief.

3. The general trend indicated that the longer a trainee remains in the service, the more negative the trainee is toward CMI. In interpreting these results, one should keep in mind that the groups with longer tenure have performed qualitatively different tasks. These populations may differ in attitudes for many reasons.

4. Although the present research did not attempt to identify the causes for the negative attitudes held by instructors, their responses to one questionnaire item (No. 42) might indicate a lack of role clarity. Only slightly more than 10 percent agreed that CMI frees the instructors to do better one-to-one teaching. Since increased attention to individuals is one of the characteristics of CBI (King, 1975), this finding could mean that the instructor is spending too much time on duties other than instruction.

RECOMMENDATIONS

1. The Chief of Naval Technical Training (CNTT) should continue research in the area of attitudes toward CMI to identify precisely those characteristics of CMI that lead to negative attitudes toward the system. This research could lead to the development of attitude-change techniques and procedures designed to improve instructor and student motivation and performance in the CMI setting.

2. If CNTT should have a requirement to measure student and/or instructor attitudes, appropriate items (e.g., those assessing features of CMI/II and the CMI/II rating scale) used in the present study can be incorporated as part of the regular course evalution process. The CMI system itself could be used to process the attitudinal data.

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APPENDIX A

STUDENT/INSTRUCTOR QUESTIONNAIRES AND RESPONSE DATA

For Students A-1
For Instructors A-13

STUDENTS' QUESTIONNAIRE AND RESPONSE DATA

Features of CMI/II

Rate this list of CMI/II features on how each affects learning. Circle the number which best represents your answer.

		% Responses				
		ADAMEM N = 52	RMSAN N = 34	AVAMEM N = 52	BFESAN N = 69	BEEMEM N = 48
1.	Frequent tests over material.					
1	VERY HARMFUL	0.0	2.9	1.9	0.0	0.0
2	SOMEWHAT HARMFUL	0.0	2.9	3.8	5.9	2.1
3	NO IMPORTANT EFFECT	0.0	0.0	3.8	1.5	4.2
4	SOMEWHAT USEFUL	46.2	14.7	36.5	26.5	27.1
5	VERY USEFUL	53.8	70.6	53.8	64.7	64.6
6	NOT A TRUE STATEMENT FOR THIS COURSE	0.0	8.8	0.0	1.5	2.1
2.	Absence of class lectures.					
1	VERY HARMFUL	21.6	17.6	15.4	20.6	16.7
2	SOMEWHAT HARMFUL	39.2	35.3	57.7	44.1	35.4
3	NO IMPORTANT EFFECT	23.5	20.6	13.5	16.2	12.5
4	SOMEWHAT USEFUL	9.8	5.9	5.8	10.3	8.3
5	VERY USEFUL	3.9	5.9	0.0	1.5	6.3
6	NOT A TRUE STATEMENT FOR THIS COURSE	1.9	14.7	7.7	7.4	20.8
3.	Students work at a pace predicted by computer.					
1	VERY HARMFUL	11.5	23.5	25.0	11.6	12.5
2	SOMEWHAT HARMFUL	44.2	26.5	40.4	31.9	33.3
3	NO IMPORTANT EFFECT	17.3	2.9	5.8	14.5	8.3
4	SOMEWHAT USEFUL	17.3	20.6	17.3	36.2	35.4
5	VERY USEFUL	9.6	26.5	11.5	4.3	10.4
6	NOT A TRUE STATEMENT FOR THIS COURSE	0.0	0.0	0.0	1.4	0.0
4.	No competition for grades.					
1	VERY HARMFUL	9.6	14.7	5.8	4.3	4.2
2	SOMEWHAT HARMFUL	13.5	20.6	21.2	24.6	14.6
3	NO IMPORTANT EFFECT	26.9	20.6	51.9	34.8	35.4
4	SOMEWHAT USEFUL	25.0	5.9	11.5	17.4	10.4
5	VERY USEFUL	19.2	23.5	5.8	18.8	29.2
6	NOT A TRUE STATEMENT FOR THIS COURSE	5.8	14.7	3.8	0.0	6.3

NOTE: Totals do not always equal 100% due to rounding.

		Responses				
		ADAMEM N = 52	RMSAN N = 34	AVAMEM N = 52	BEESAN N = 69	BEEMEM N = 48
5.	Short lesson units.					
1	VERY HARMFUL	0.0	2.9	0.0	0.0	0.0
2	SOMEWHAT HARMFUL	5.8	0.0	1.9	10.1	2.1
3	NO IMPORTANT EFFECT	13.5	17.6	28.8	13.0	8.3
4	SOMEWHAT USEFUL	28.8	26.5	34.6	36.2	33.3
5	VERY USEFUL	51.9	52.9	34.6	40.6	56.3
6.	Students work alone to master material.					
1	VERY HARMFUL	11.5	5.9	7.7	11.6	4.2
2	SOMEWHAT HARMFUL	28.8	23.5	46.2	47.8	31.3
3	NO IMPORTANT EFFECT	3.8	5.9	1.9	2.9	0.0
4	SOMEWHAT USEFUL	28.8	20.6	28.8	20.3	25.0
5	VERY USEFUL	26.9	44.1	15.4	17.4	39.6
7.	Student performance data provided by computer.					
1	VERY HARMFUL	5.8	2.9	0.0	1.4	4.2
2	SOMEWHAT HARMFUL	11.5	14.7	5.8	5.8	10.4
3	NO IMPORTANT EFFECT	23.1	17.6	19.2	30.4	18.8
4	SOMEWHAT USEFUL	30.8	17.6	34.6	27.5	29.2
5	VERY USEFUL	28.8	47.1	40.4	34.8	37.5
8.	Use of reading material as a major source of information.					
1	VERY HARMFUL	3.8	0.0	5.8	2.9	0.0
2	SOMEWHAT HARMFUL	11.5	2.9	28.8	15.9	25.0
3	NO IMPORTANT EFFECT	7.7	8.8	5.8	10.1	6.3
4	SOMEWHAT USEFUL	30.8	26.5	25.0	42.0	27.1
5	VERY USEFUL	46.2	61.8	34.6	29.0	41.7
9.	Classroom setting.					
1	VERY HARMFUL	13.5	5.9	0.0	5.8	2.1
2	SOMEWHAT HARMFUL	15.4	11.8	7.7	24.6	16.7
3	NO IMPORTANT EFFECT	28.8	29.4	40.4	31.9	22.9
4	SOMEWHAT USEFUL	17.3	26.5	23.1	24.6	35.4
5	VERY USEFUL	25.0	26.5	28.8	13.0	22.9
10.	Students working at individual study carrels during class.					
1	VERY HARMFUL	3.8	5.9	0.0	2.9	0.0
2	SOMEWHAT HARMFUL	23.1	0.0	3.8	23.2	14.6
3	NO IMPORTANT EFFECT	5.8	17.6	17.3	14.5	10.4
4	SOMEWHAT USEFUL	32.7	26.5	30.8	36.2	25.0
5	VERY USEFUL	34.6	50.0	48.1	23.2	50.0

		Responses				
		ADAMEM N = 52	RMSAN N = 34	AVAMIM N = 52	DEPSAN N = 69	LEEMLM N = 48
11.	Use of a computer in the classroom.					
1	VERY HARMFUL	3.8	17.6	1.9	0.0	2.1
2	SOMEWHAT HARMFUL	11.5	2.9	1.9	4.3	12.5
3	NO IMPORTANT EFFECT	25.0	5.9	21.2	23.2	22.9
4	SOMEWHAT USEFUL	36.5	23.5	25.0	37.7	25.0
5	VERY USEFUL	15.4	47.1	46.2	27.5	31.3
6	NOT A TRUE STATEMENT FOR THIS COURSE	7.7	2.9	3.8	7.2	6.3
12.	Student berthing (living in same quarters with other students.					
1	VERY HARMFUL	9.6	29.4	7.7	1.4	0.0
2	SOMEWHAT HARMFUL	7.7	20.6	13.5	2.9	8.5
3	NO IMPORTANT EFFECT	19.2	20.6	15.4	20.3	36.2
4	SOMEWHAT USEFUL	25.0	8.8	21.2	30.4	23.4
5	VERY USEFUL	36.5	14.7	34.6	40.6	25.5
6	NOT APPLICABLE TO THIS COURSE	1.9	5.9	7.7	4.3	6.4

Instructor Rating Scale

Rate your CMI/II Instructor by circling the number which best represents your answer to the following statements.

My instructors...

13.	Motivate my interest in the subject matter.					
1	ALMOST NEVER	11.8	2.9	15.4	10.1	23.4
2	SELDOM	27.5	17.6	48.1	29.0	14.9
3	OFTEN	39.2	44.1	30.8	42.0	44.7
4	ALMOST ALWAYS	21.6	35.3	5.8	18.8	17.0
14.	Watch me too closely.					
1	ALMOST NEVER	19.6	35.3	21.2	27.5	22.9
2	SELDOM	58.8	38.2	67.3	56.5	62.5
3	OFTEN	15.7	23.5	9.6	10.1	12.5
4	ALMOST ALWAYS	5.9	2.9	1.9	5.8	2.1
15.	Give recognition for good work.					
1	ALMOST NEVER	7.8	14.7	27.5	13.0	17.0
2	SELDOM	17.6	5.9	41.2	33.3	27.7
3	OFTEN	47.1	50.0	25.5	37.7	38.3
4	ALMOST ALWAYS	27.5	29.4	5.9	15.9	17.0

		Responses				
		ADAMEM N = 52	RMSAN N = 34	AVAMEM N = 52	BEESAN N = 69	BEEMEM N = 48
16.	Try to make sure I understand what is being taught.					
	1 ALMOST NEVER	9.8	0.0	11.5	1.5	6.3
	2 SELDOM	13.7	14.7	28.8	22.1	18.8
	3 OFTEN	33.3	32.4	42.3	45.6	22.9
	4 ALMOST ALWAYS	43.1	52.9	17.3	30.9	52.1
17.	Ignore me when I need help.					
	1 ALMOST NEVER	80.4	76.5	67.3	66.7	76.6
	2 SELDOM	11.8	17.6	23.1	27.5	21.3
	3 OFTEN	3.9	2.9	9.6	4.3	2.1
	4 ALMOST ALWAYS	3.9	2.9	0.0	1.4	0.0
18.	Treat me as a responsible person.					
	1 ALMOST NEVER	2.0	0.0	7.7	2.9	8.5
	2 SELDOM	11.8	5.9	25.0	8.7	8.5
	3 OFTEN	43.1	41.2	34.6	46.4	34.0
	4 ALMOST ALWAYS	43.1	52.9	32.7	42.0	48.9
19.	Treat me in a fair manner.					
	1 ALMOST NEVER	0.0	0.0	1.9	1.4	2.1
	2 SELDOM	7.8	5.9	11.5	4.3	12.5
	3 OFTEN	31.4	35.3	48.1	43.5	18.8
	4 ALMOST ALWAYS	60.8	58.8	38.5	50.7	66.7
20.	Put too much pressure on me to finish assignments.					
	1 ALMOST NEVER	31.4	52.9	40.4	38.2	43.8
	2 SELDOM	47.1	41.2	50.0	51.5	29.2
	3 OFTEN	11.8	2.9	7.7	8.8	12.5
	4 ALMOST ALWAYS	9.8	2.9	1.9	1.5	14.6
21.	Encourage me to do my best.					
	1 ALMOST NEVER	2.0	0.0	15.4	1.4	6.3
	2 SELDOM	11.8	2.9	15.4	31.9	16.7
	3 OFTEN	29.4	26.5	38.5	30.4	29.2
	4 ALMOST ALWAYS	56.9	70.6	30.8	36.2	47.9

		% Responses				
		ADAMEM N = 52	RMSAN N =34	AVAMEM N = 52	BEESAN N = 69	BEEMEM N = 48
22.	Are warm and friendly.					
1	ALMOST NEVER	0.0	2.9	13.5	6.0	8.7
2	SELDOM	21.6	11.8	23.1	23.9	15.2
3	OFTEN	37.3	29.4	44.2	31.3	41.3
4	ALMOST ALWAYS	41.2	55.9	19.2	38.8	34.8
23.	Tell jokes and stories to entertain the class.					
1	ALMOST NEVER	13.7	50.0	26.9	40.6	55.3
2	SELDOM	43.1	29.4	34.6	37.7	25.5
3	OFTEN	29.4	17.6	26.9	14.5	14.9
4	ALMOST ALWAYS	13.7	2.9	11.5	7.2	4.3
24.	Maintain too strict military discipline in the classroom.					
1	ALMOST NEVER	21.1	23.5	25.0	19.1	23.4
2	SELDOM	53.8	50.0	40.4	55.9	48.9
3	OFTEN	23.1	11.8	28.8	11.8	17.0
4	ALMOST ALWAYS	1.9	14.7	5.8	13.2	10.6
25.	Belittle me when I have a problem understanding the material.					
1	ALMOST NEVER	53.1	67.6	44.2	56.7	70.2
2	SELDOM	30.6	17.6	38.5	31.3	25.5
3	OFTEN	12.2	11.8	11.5	7.5	2.1
4	ALMOST ALWAYS	4.1	2.9	5.8	5.8	2.1
26.	Distract me while I am studying.					
1	ALMOST NEVER	78.8	88.2	50.0	82.6	80.9
2	SELDOM	17.3	8.8	34.6	17.4	17.0
3	OFTEN	3.8	2.9	9.6	0.0	2.1
4	ALMOST ALWAYS	0.0	0.0	5.8	0.0	0.0
27.	Are cold and distant toward me.					
1	ALMOST NEVER	71.2	8.2	46.2	60.9	64.6
2	SELDOM	26.9	11.8	36.5	27.5	29.2
3	OFTEN	0.0	0.0	17.3	11.6	6.3
4	ALMOST ALWAYS	1.9	0.0	0.0	0.0	0.0

		Responses				
		ADAMEM N = 52	RMSAN N = 34	AVAMEM N = 52	BEESAN N = 69	BEEMEM N = 48
28.	Give directions that are					
	1 SPECIFIC	50.0	70.6	53.8	50.7	68.8
	2 GENERAL	42.3	29.4	46.2	47.8	29.2
	3 NO DIRECTIONS	7.7	0.0	0.0	1.4	2.1
29.	Know more about their subject than my high school instructors did.					
	1 ALMOST NEVER	5.8	2.9	0.0	6.0	2.3
	2 SELDOM	15.4	2.9	13.7	11.9	9.3
	3 OFTEN	38.5	32.4	19.6	26.9	30.2
	4 ALMOST ALWAYS	40.4	61.8	66.7	55.2	58.1
30.	Are more interesting than my high school instructors were.					
	1 ALMOST NEVER	15.4	11.8	17.3	17.6	28.3
	2 SELDOM	32.7	26.5	34.6	33.8	26.1
	3 OFTEN	25.0	35.3	21.2	32.4	23.9
	4 ALMOST ALWAYS	26.9	26.5	26.9	16.2	21.7
31.	Are more concerned than my high school instructors were about me.					
	1 ALMOST NEVER	3.8	14.7	25.0	11.9	23.4
	2 SELDOM	30.8	17.6	48.1	40.3	25.5
	3 OFTEN	26.9	29.4	21.2	32.8	31.9
	4 ALMOST ALWAYS	38.5	38.2	5.8	14.9	19.1
As a student, I...						
32.	Develop my own goals in the course.					
	1 FREQUENTLY	55.8	67.6	51.9	58.8	62.5
	2 OFTEN	36.5	32.4	44.2	38.2	29.2
	3 SELDOM	7.7	0.0	1.9	2.9	6.3
	4 ALMOST NEVER	0.0	0.0	1.9	0.0	2.1
33.	Organize my own work situation.					
	1 FREQUENTLY	48.1	47.1	55.8	62.3	47.9
	2 OFTEN	40.4	47.1	40.4	33.3	47.9
	3 SELDOM	9.6	2.9	3.8	4.3	2.1
	4 ALMOST NEVER	1.9	2.9	0.0	0.0	2.1

		% Responses				
		ADAMEM N = 52	RMSAN N =34	AVAMEM N = 52	BLESAN N = 69	BEEMEM N = 48
34.	Set my own time lines for completing work.					
1	FREQUENTLY	44.2	47.1	38.5	55.1	31.3
2	OFTEN	38.5	29.4	46.2	26.1	52.1
3	SELDOM	11.5	11.8	9.6	13.0	10.4
4	ALMOST NEVER	5.8	11.8	5.8	5.8	6.3
35.	Seek information from my instructors.					
1	FREQUENTLY	17.3	38.2	30.8	21.7	27.1
2	OFTEN	36.5	41.2	26.9	39.1	41.7
3	SELDOM	34.6	20.6	34.6	34.8	25.0
4	ALMOST NEVER	11.5	0.0	7.7	4.3	6.3
36.	Am willing to take responsibility for my work.					
1	FREQUENTLY	69.2	79.4	75.0	72.5	81.3
2	OFTEN	28.8	20.6	25.0	27.5	16.7
3	SELDOM	0.0	0.0	0.0	0.0	2.1
4	ALMOST NEVER	1.9	0.0	0.0	0.0	0.0
37.	Am capable of doing well in this course.					
1	FREQUENTLY	57.7	58.8	59.6	58.8	63.8
2	OFTEN	42.3	35.3	40.4	39.7	34.0
3	SELDOM	0.0	5.9	0.0	1.5	0.0
4	ALMOST NEVER	0.0	0.0	0.0	0.0	2.1

CMI/II Rating Scale

Indicate how true the following statements are about CMI/II by circling the number which best represents your answer.

The CMI/II system...

38.	Produces students who are better prepared for their Navy job than other methods of instruction.					
1	STRONGLY DISAGREE	15.7	29.4	19.2	12.1	14.9
2	DISAGREE	25.5	14.7	38.5	53.0	29.8
3	AGREE	51.0	47.1	40.4	33.3	42.6
4	STRONGLY AGREE	7.8	8.8	1.9	1.5	12.8

		Responses				
		ADAMLM N = 52	RMSAN N = 34	AVAMLM N = 52	BLTSAN N = 69	BLEMLM N = 48
39.	Insures that students learn the concepts in each unit.					
1	STRONGLY DISAGREE	3.8	11.8	19.2	7.2	4.2
2	DISAGREE	28.8	20.6	36.5	43.5	20.8
3	AGREE	51.9	52.9	42.3	40.6	50.0
4	STRONGLY AGREE	15.4	14.7	1.9	8.7	25.0
40.	Takes care of the course paperwork and record keeping efficiently.					
1	STRONGLY DISAGREE	1.9	8.8	3.8	4.4	2.1
2	DISAGREE	5.8	8.8	1.9	4.4	0.0
3	AGREE	59.6	44.1	53.8	47.1	62.5
4	STRONGLY AGREE	32.7	38.2	40.4	44.1	35.4
41.	Helps the training be more enjoyable.					
1	STRONGLY DISAGREE	23.1	29.4	21.2	19.1	14.6
2	DISAGREE	38.5	32.4	51.9	50.0	39.6
3	AGREE	32.7	29.4	23.1	27.9	33.3
4	STRONGLY AGREE	5.8	8.8	3.8	2.9	12.5
42.	Frees the instructors to do better one-to-one teaching.					
1	STRONGLY DISAGREE	3.8	17.6	7.7	13.2	2.1
2	DISAGREE	9.6	14.7	25.0	22.1	8.3
3	AGREE	65.4	38.2	51.9	48.5	47.9
4	STRONGLY AGREE	21.2	29.4	15.4	16.2	41.7
43.	Allows students to progress at their best rate.					
1	STRONGLY DISAGREE	13.5	17.6	13.5	14.5	10.4
2	DISAGREE	11.5	11.8	34.6	27.5	31.3
3	AGREE	51.9	35.3	28.8	44.9	31.3
4	STRONGLY AGREE	23.1	35.3	23.1	13.0	27.1
44.	Presents the subject matter in a way which is easily understood.					
1	STRONGLY DISAGREE	0.0	14.7	5.8	7.5	6.3
2	DISAGREE	21.2	26.5	32.7	40.3	22.9
3	AGREE	61.5	41.2	51.9	47.8	50.0
4	STRONGLY AGREE	17.3	17.6	9.6	4.5	20.8

		% Responses				
		ADAMEM N = 52	RMSAN N = 34	AVAMEM N = 52	BEESAN N = 69	BEEMEM N = 48
45.	Removes pressure to compete with other students.					
1	STRONGLY DISAGREE	5.8	14.7	9.6	7.2	2.1
2	DISAGREE	28.8	32.4	26.9	33.3	33.3
3	AGREE	50.0	26.5	55.8	49.3	47.9
4	STRONGLY AGREE	15.4	26.5	7.7	10.1	16.7
46.	Enables students to learn a lot of information in a short time.					
1	STRONGLY DISAGREE	7.7	20.6	9.6	6.0	2.1
2	DISAGREE	23.1	17.6	23.1	22.4	12.5
3	AGREE	51.9	35.3	48.1	59.7	60.4
4	STRONGLY AGREE	17.3	26.5	19.2	11.9	25.0
47.	Meets the individual needs of each student.					
1	STRONGLY DISAGREE	13.5	32.4	17.3	23.2	14.9
2	DISAGREE	42.3	26.5	53.8	52.2	36.2
3	AGREE	42.3	32.4	26.9	21.7	44.7
4	STRONGLY AGREE	1.9	8.8	1.9	2.9	4.3
48.	Provides a clear step-by-step procedure for learning the material.					
1	STRONGLY DISAGREE	1.9	11.8	3.9	5.8	4.2
2	DISAGREE	7.7	23.5	17.6	13.0	10.4
3	AGREE	76.9	58.8	70.6	72.5	72.9
4	STRONGLY AGREE	13.5	5.9	7.8	8.7	12.5
49.	Places more emphasis on completing a module than on acquiring a skill or knowledge.					
1	STRONGLY DISAGREE	7.8	26.5	1.9	1.4	4.3
2	DISAGREE	35.3	11.8	23.1	18.8	38.3
3	AGREE	43.1	35.3	34.6	44.9	31.9
4	STRONGLY AGREE	13.7	26.5	40.4	34.8	25.5
50.	Informs the student when he or she has successfully completed a unit.					
1	STRONGLY DISAGREE	0.0	0.0	0.0	0.0	2.1
2	DISAGREE	1.9	0.0	1.9	2.9	2.1
3	AGREE	76.9	55.9	69.2	66.7	60.4
4	STRONGLY AGREE	21.2	44.1	28.8	30.4	35.4

		% Responses				
		ADAMEM N = 52	RMSAN N = 34	AVAMEM N = 52	BEESAN N = 69	BEEMEM N = 48
51.	Gives useful feedback on how to correct mistakes made on a test.					
	1 STRONGLY DISAGREE	25.0	23.5	9.6	18.8	4.2
	2 DISAGREE	26.9	26.5	17.3	18.8	22.9
	3 AGREE	40.4	26.5	59.6	49.3	50.0
	4 STRONGLY AGREE	7.7	23.5	13.5	13.0	22.9
52.	Provides a detailed description of what is expected from students taking the training.					
	1 STRONGLY DISAGREE	3.8	14.7	7.7	1.4	2.1
	2 DISAGREE	32.7	26.5	34.6	30.4	20.8
	3 AGREE	59.6	47.1	51.9	62.3	58.3
	4 STRONGLY AGREE	3.8	11.8	5.8	5.8	18.8
53.	Is more interesting than high school training.					
	1 STRONGLY DISAGREE	23.1	11.8	15.4	18.8	15.6
	2 DISAGREE	26.9	17.6	26.9	29.0	24.4
	3 AGREE	32.7	41.2	48.1	37.7	42.2
	4 STRONGLY AGREE	17.3	29.4	9.6	14.5	17.8
54.	Better than conventional or lockstep-lecture courses.					
	1 STRONGLY DISAGREE	11.5	17.6	15.7	14.5	10.4
	2 DISAGREE	38.5	14.7	35.3	40.6	35.4
	3 AGREE	40.4	35.3	41.2	37.7	25.0
	4 STRONGLY AGREE	9.6	32.4	7.8	7.2	29.2
55.	Demands more student effort than high school.					
	1 STRONGLY DISAGREE	3.8	11.8	3.8	2.9	2.1
	2 DISAGREE	19.2	14.7	9.6	5.8	18.8
	3 AGREE	40.4	41.2	48.1	62.3	39.6
	4 STRONGLY AGREE	36.5	32.4	38.5	29.0	39.6
56.	Is more motivating than high school.					
	1 STRONGLY DISAGREE	5.8	20.6	9.6	13.0	12.5
	2 DISAGREE	32.7	5.9	26.9	27.5	10.4
	3 AGREE	32.7	35.3	38.5	47.8	54.2
	4 STRONGLY AGREE	28.8	38.2	25.0	11.6	22.9

LEAST PREFERRED CO-WORKER SCALE

This section is intended to identify your working style and the condition under which you are most effective. As you answer the items below, think of the one person, either in the past or present, with whom you had the most difficulty getting a job done. However, this individual is not necessarily the person you liked least.

On the scale below, describe this person by placing a check (✓) in the appropriate space. Think of the eight spaces as steps which range from one extreme to another. Before you place your check (✓) look at both ends of the line. Do not omit any items, and mark each item only once.

57.	Pleasant	8	7	6	5	4	3	2	1	Unpleasant
58.	Friendly	8	7	6	5	4	3	2	1	Unfriendly
59.	Rejecting	1	2	3	4	5	6	7	8	Accepting
60.	Tense	1	2	3	4	5	6	7	8	Relaxed
61.	Distant	1	2	3	4	5	6	7	8	Close
62.	Cold	1	2	3	4	5	6	7	8	Warm
63.	Supportive	8	7	6	5	4	3	2	1	Hostile
64.	Boring	1	2	3	4	5	6	7	8	Interesting
65.	Quarrelsome	1	2	3	4	5	6	7	8	Harmonious
66.	Gloomy	1	2	3	4	5	6	7	8	Cheerful
67.	Open	8	7	6	5	4	3	2	1	Guarded
68.	Backbiting	1	2	3	4	5	6	7	8	Loyal
69.	Untrustworthy	1	2	3	4	5	6	7	8	Trustworthy
70.	Considerate	8	7	6	5	4	3	2	1	Inconsiderate
71.	Nasty	1	2	3	4	5	6	7	8	Nice
72.	Agreeable	8	7	6	5	4	3	2	1	Disagreeable
73.	Insincere	1	2	3	4	5	6	7	8	Sincere
74.	Kind	8	7	6	5	4	3	2	1	Unkind

INSTRUCTION IDENTIFICATION QUESTIONS

Circle the number which bests represents your answer.

	Responses				
	AVAHLM N = 19	[illegible] N = 18	AVAHLM N = 19	[illegible] N = 24	[illegible] N = 20
75. How long have you been in the Navy?					
1 1-4 YEARS	10.5	0.0	0.0	0.0	0.0
2 5-10 YEARS	63.2	16.7	73.7	41.7	47.4
3 11-16 YEARS	15.8	38.9	15.8	29.2	36.8
4 MORE THAN 16 YEARS	10.5	44.4	10.5	29.2	15.8
76. How many tours of instructor duty have you had? Is this the:					
1 FIRST	94.7	83.3	94.7	95.8	84.2
2 SECOND	5.3	11.1	5.3	4.2	15.0
3 THIRD	0.0	5.6	0.0	0.0	0.0
4 MORE THAN 3	0.0	0.0	0.0	0.0	0.0
77. Would you request another extended tour of instructor duty?					
1 YES, IN A CMI/II COURSE	26.3	11.	36.8	41.7	21.1
2 YES, BUT NOT IN A CMI/II COURSE	63.2	72.2	31.6	33.3	57.9
3 NO	10.5	16.7	31.6	25.0	21.1

78. Have you attended instructor[a] training school? (check as many as apply)

1 YES, INSTRUCTOR BASIC COURSE

2 YES, LEARNING CENTER INSTRUCTOR COURSE

3 YES, INDIVIDUALIZED INSTRUCTION TECHNIQUES

4 YES, OTHER: PLEASE STATE_____

5 NO

79. Did you have on-site training as an instructor?					
1 YES	89.5	94.4	84.2	95.8	84.2
2 NO	10.5	5.6	15.8	4.2	15.8

80. Have you ever taken (participated as a student) in an individualized instruction course?

1 YES, IN HIGH SCHOOL/TRAINING SCHOOL

2 YES, IN COLLEGE

3 YES, IN NAVY COURSES

4 YES, OTHER: PLEASE STATE_____

5 NO

Rate this list of CMI/II features on how each affects learning. Circle the number which best represents your answer.

	% Responses				
	ADAMEM N = 19	RMSAN N = 18	AVAMEM N = 19	BEESAN N = 24	BEEMEM N = 20
1. Frequent tests over material.					
1 VERY HARMFUL	0.0	5.6	5.3	0.0	0.0
2 SOMEWHAT HARMFUL	5.3	33.3	0.0	41.7	20.0
3 NO IMPORTANT EFFECT	0.0	5.6	5.3	0.0	5.0
4 SOMEWHAT USEFUL	47.4	50.0	36.8	33.3	30.0
5 VERY USEFUL	47.4	5.6	52.6	25.0	45.0
2. Absence of class lectures.					
1 VERY HARMFUL	52.6	66.7	15.8	4.2	30.0
2 SOMEWHAT HARMFUL	36.8	33.3	63.2	79.2	55.0
3 NO IMPORTANT EFFECT	5.3	0.0	10.5	12.5	10.0
4 SOMEWHAT USEFUL	5.3	0.0	0.0	4.2	5.0
5 VERY USEFUL	0.0	0.0	10.5	0.0	0.0
3. Students work at a pace predicted by the computer.					
1 VERY HARMFUL	21.1	33.3	10.5	0.0	30.0
2 SOMEWHAT HARMFUL	42.1	55.6	47.4	33.3	30.0
3 NO IMPORTANT EFFECT	5.3	11.1	15.8	12.5	10.0
4 SOMEWHAT USEFUL	26.3	0.0	21.1	37.5	15.0
5 VERY USEFUL	5.3	0.0	5.3	16.7	15.0
4. No competition for grades.					
1 VERY HARMFUL	31.6	44.4	15.8	4.2	15.0
2 SOMEWHAT HARMFUL	47.4	38.9	31.6	20.8	30.0
3 NO IMPORTANT EFFECT	5.3	16.7	36.8	50.0	30.0
4 SOMEWHAT USEFUL	10.5	0.0	10.5	12.5	15.0
5 VERY USEFUL	5.3	0.0	5.3	12.5	10.0
5. Short lesson units					
1 VERY HARMFUL	0.0	5.6	5.3	0.0	0.0
2 SOMEWHAT HARMFUL	0.0	16.7	5.3	25.0	5.0
3 NO IMPORTANT EFFECT	10.5	33.3	15.8	20.8	10.0
4 SOMEWHAT USEFUL	63.2	38.9	36.8	37.5	45.0
5 VERY USEFUL	26.3	5.6	36.8	16.7	40.0
6. Students work to master material					
1 VERY HARMFUL	21.1	38.9	5.3	4.2	10.0
2 SOMEWHAT HARMFUL	42.1	44.4	26.3	20.8	25.0
3 NO IMPORTANT EFFECT	21.1	0.0	10.5	8.3	5.0
4 SOMEWHAT USEFUL	0.0	11.1	31.6	41.7	30.0
5 VERY USEFUL	15.8	5.6	26.3	25.0	30.0

NOTE: Totals do not always equal 100% due to rounding.

	Responses				
	ADANLM N = 19	RNSAN N = 18	AVANLM N = 19	RESAN N = 24	BEDNLM N = 20
7. Student performance data provided by computer.					
1 VERY HARMFUL	0.0	11.1	10.5	0.0	5.0
2 SOMEWHAT HARMFUL	15.8	5.6	0.0	4.2	5.0
3 NO IMPORTANT EFFECT	26.3	11.1	0.0	29.2	20.0
4 SOMEWHAT USEFUL	26.3	33.3	15.8	29.2	15.0
5 VERY USEFUL	31.6	38.9	73.7	37.5	55.0
8. Use of reading material as a major source of information.					
1 VERY HARMFUL	10.5	5.6	10.5	0.0	10.5
2 SOMEWAHT HARMFUL	36.8	44.4	26.3	29.2	36.8
3 NO IMPORTANT EFFECT	10.5	11.1	0.0	12.5	0.0
4 SOMEWHAT USEFUL	26.3	38.9	31.6	29.2	26.3
5 VERY USEFUL	15.8	0.0	31.6	29.2	26.3
9. Classroom setting.					
1 VERY HARMFUL	10.5	27.8	5.3	0.0	0.0
2 SOMEWHAT HARMFUL	36.8	33.3	10.5	16.7	15.0
3 NO IMPORTANT EFFECT	15.8	27.8	31.6	41.7	10.0
4 SOMEWAHT USEFUL	21.1	5.6	15.8	29.2	25.0
5 VERY USEFUL	15.8	5.6	36.8	12.5	50.0
10. Isolating students at carrels during class.					
1 VERY HARMFUL	21.1	27.8	10.5	0.0	5.0
2 SOMEWHAT HARMFUL	52.6	27.8	10.5	12.5	15.0
3 NO IMPORTANT EFFECT	10.5	22.2	26.3	20.8	15.0
4 SOMEWHAT USEFUL	10.5	16.7	31.6	33.3	25.0
5 VERY USEFUL	5.3	5.6	21.1	33.3	40.0
11. Use of a computer as a training aid					
1 VERY HARMFUL	10.5	27.8	5.3	4.2	10.0
2 SOMEWHAT HARMFUL	5.3	22.2	10.5	20.8	10.0
3 NO IMPORTANT EFFECT	26.3	5.6	0.0	12.5	5.0
4 SOMEWHAT USEFUL	36.8	33.3	31.6	12.5	15.0
5 VERY USEFUL	10.5	5.6	36.9	12.5	10.0
6 NOT APPLICABLE TO THIS COURSE	10.5	5.6	15.8	37.5	50.0
12. Student berthing (living in same quarters with other students)					
1 VERY HARMFUL	10.5	5.6	10.5	0.0	10.0
2 SOMEWHAT HARMFUL	5.3	22.2	15.8	4.2	25.0
3 NO IMPORTANT EFFECT	31.6	22.2	31.6	50.0	10.0
4 SOMEWHAT USEFUL	26.3	11.1	36.8	20.8	30.0
5 VERY USEFUL	26.3	33.3	0.0	20.8	20.0
6 NOT APPLICABLE TO THIS COURSE	0.0	5.6	5.3	4.2	5.0

Student Rating Scale

Rate your students by circling the number which best represents y our answer to the following statements.

My students...

	% Responses				
	ADAMEM N = 19	BMSAN N = 18	AVAMEM N = 19	BEESAN N = 24	BELMEM N = 20
13. Work hard to understand the subject matter.					
1 ALMOST NEVER	5.3	5.6	5.3	0.0	5.0
2 SELDOM	26.3	55.6	31.6	8.3	10.0
3 OFTEN	57.9	33.3	57.9	75.0	65.0
4 ALMOST ALWAYS	10.5	5.6	5.3	16.7	20.0
14. Wait until they are "lost" in the material before coming to me for help.					
1 ALMOST NEVER	5.3	5.6	5.3	4.2	0.0
2 SELDOM	31.6	16.7	15.8	58.3	40.0
3 OFTEN	47.4	55.6	47.4	25.0	35.0
4 ALMOST ALWAYS	15.8	22.2	31.6	12.5	25.0
15. Ask me how well they are doing in the course.					
1 ALMOST NEVER	5.3	5.6	15.8	0.0	0.0
2 SELDOM	36.8	27.8	31.6	8.3	5.0
3 OFTEN	42.1	50.0	42.1	37.5	55.0
4 ALMOST ALWAYS	15.8	16.7	10.5	54.2	40.0
16. Need constant pressure to finish assignments on time.					
1 ALMOST NEVER	10.5	0.0	10.5	8.3	5.3
2 SELDON	31.6	22.2	31.6	66.7	31.6
3 OFTEN	52.6	55.6	42.1	25.0	57.9
4 ALMOST ALWAYS	5.3	22.2	15.8	0.0	5.3
17. Try to get to know me as a friend.					
1 ALMOST NEVER	15.8	22.2	316.	4.2	30.0
2 SELDOM	42.1	55.6	57.9	41.7	30.0
3 OFTEN	31.6	11.1	10.5	41.7	30.0
4 ALMOST ALWAYS	10.5	11.1	0.0	12.5	10.0
My students					
18. Ask unnecessary questions about the subject matter.					
1 ALMOST NEVER	26.3	33.3	21.1	16.7	30.0
2 SELDOM	52.6	27.8	52.6	54.2	45.0
3 OFTEN	10.5	38.9	26.3	25.0	25.0
4 ALMOST ALWAYS	10.5	0.0	0.0	4.2	0.0

	ADAMEM N = 19	EMGAN N = 18	AVAMEM N = 19	BELSAN N = 24	BELMEM N = 20
19. Are self-motivated and responsible.					
1 ALMOST NEVER	10.5	16.7	26.3	0.0	10.0
2 SELDOM	36.8	66.7	36.8	16.7	20.0
3 OFTEN	42.1	16.7	36.8	70.8	65.0
4 ALMOST ALWAYS	10.5	0.0	0.0	12.5	5.0
20. Discuss non-course-related concerns with me.					
1 ALMOST NEVER	5.3	0.0	15.8	0.0	5.0
2 SELDOM	21.1	44.4	57.9	37.5	45.0
3 OFTEN	68.4	50.0	21.1	58.3	45.0
4 ALMOST ALWAYS	5.3	5.6	5.3	4.2	5.0
21. Waste time if not closely watched.					
1 ALMOST NEVER	0.0	0.0	5.3	0.0	0.0
2 SELDOM	31.6	16.7	36.8	62.5	50.0
3 OFTEN	57.9	66.7	36.8	29.2	45.0
4 ALMOST ALWAYS	10.5	16.7	21.1	8.3	5.0
22. Require disciplinary action.					
1 ALMOST NEVER	31.6	0.0	5.3	20.8	20.0
2 SELDOM	42.1	33.3	42.1	66.7	50.0
3 OFTEN	26.3	61.1	52.6	8.3	30.0
4 ALMOST ALWAYS	0.0	5.6	0.0	4.2	0.0
23. Accept my suggestion and criticism well.					
1 ALMOST NEVER	0.0	0.0	5.3	0.0	0.0
2 SELDOM	31.6	16.7	31.6	4.3	10.0
3 OFTEN	42.1	61.1	47.4	52.2	55.0
4 ALMOST ALWAYS	26.3	22.2	15.8	43.5	35.0
My students...					
24. Avoid coming to me for help.					
1 ALMOST NEVER	21.1	33.3	31.6	45.8	50.0
2 SELDOM	47.4	44.4	52.6	50.0	40.0
3 OFTEN	26.3	22.2	15.8	4.2	10.0
4 ALMOST ALWAYS	5.3	0.0	0.0	0.0	0.0
25. Try to finish assignments ahead of time.					
1 ALMOST NEVER	5.3	0.0	5.3	0.0	0.0
2 SELDOM	52.6	23.5	15.8	0.0	10.0
3 OFTEN	36.8	64.7	63.2	66.7	65.0
4 ALMOST ALWAYS	5.3	11.8	15.8	33.3	25.0

	Responses				
	ADAMEM N = 19	RMSAN N = 18	AVAMEM N = 19	BEESAN N = 24	BEEMEM N = 20
26. Appreciate my encouragement.					
1 ALMOST NEVER	0.0	0.0	10.5	4.2	0.0
2 SELDOM	5.3	11.1	5.3	8.3	10.0
3 OFTEN	57.9	33.3	52.6	50.0	20.0
4 ALMOST ALWAYS	36.8	55.6	31.6	37.5	70.0
27. Are cold and distant toward me.					
1 ALMOST NEVER	42.1	38.9	26.3	54.2	65.0
2 SELDOM	47.4	55.6	57.9	45.8	30.0
3 OFTEN	5.3	0.0	15.8	0.0	5.0
4 ALMOST ALWAYS	5.3	5.6	0.0	0.0	0.0
28. Work well together on problems.					
1 ALMOST NEVER	5.3	22.2	10.5	0.0	5.0
2 SELDOM	26.3	5.6	5.3	16.7	5.0
3 OFTEN	47.4	16.7	10.5	41.7	5.0
4 ALMOST ALWAYS	5.3	0.0	0.0	4.2	15.0
5 NOT APPROPRIATE FOR THEM TO WORK TOGETHER IN THIS COURSE	15.8	55.6	73.7	37.5	70.0
As an instructor, I...					
29. Let students organize their own work situation					
1 FREQUENTLY	5.3	11.1	15.8	37.5	20.0
2 OFTEN	15.8	16.7	31.6	37.5	35.0
3 SELDOM	52.6	38.9	15.8	12.5	25.0
4 RARELY	26.3	33.3	36.8	12.5	20.0
30. Provide directions to students.					
1 THAT ARE SPECIFIC	57.9	77.8	36.8	58.3	80.0
2 THAT ARE GENERAL	36.8	22.2	52.6	37.5	15.0
3 NEITHER, I DO NOT DIRECT STUDENTS	5.3	0.0	10.5	4.2	5.0
31. Provide support and encouragement to students.					
1 FREQUENTLY	57.9	66.7	36.8	54.2	80.0
2 OFTEN	42.1	27.8	63.2	45.8	20.0
3 SELDOM	0.0	5.6	0.0	0.0	0.0
4 RARELY	0.0	0.0	0.0	0.0	0.0

	Responses				
	ADAMEM N = 19	BRYAN N = 18	AVAMEM N = 19	BELSAN N = 24	LEEMEM N = 20
32. I initiate talks with students about their progress generally					
1 FREQUENTLY	31.6	50.0	11.1	30.4	21.1
2 OFTEN	36.8	33.3	38.9	56.5	57.9
3 SELDOM	15.8	11.1	33.3	4.3	5.3
4 RARELY, IT'S NOT NECESSARY	10.5	0.0	5.6	4.3	15.8
5 RARELY, BUT THEY COME TO SEE ME	5.3	5.6	11.1	4.3	0.0
6 RARELY, BECAUSE THE COMPUTER KEEPS THEM INFORMED	0.0	0.0	0.0	0.0	0.0
33. I feel that the caliber of students is changing.					
1 YES, FOR THE BETTER	10.5	5.6	5.3	25.0	25.0
2 YES, FOR THE WORSE	63.2	72.2	73.7	37.5	75.0
3 NO CHANGE	26.3	22.2	21.1	37.5	0.0
As an instructor, I....					
34. Organize my own work situation.					
1 FREQUENTLY	21.1	66.7	36.8	33.3	40.0
2 OFTEN	52.6	11.1	31.6	41.7	30.0
3 SELDOM	10.5	5.6	15.8	16.7	10.0
4 RARELY	5.3	11.1	5.3	4.2	0.0
5 RARELY, DON'T NEED TO, IT'S DONE FOR ME.	10.5	5.6	10.5	4.2	20.0
35. Have support and encouragement from my supervisors.					
1 FREQUENTLY	52.6	44.4	31.6	26.1	45.0
2 OFTEN	36.8	50.0	57.9	56.5	40.0
3 SELDOM	10.5	5.6	5.3	17.4	5.0
4 RARELY	0.0	0.0	5.3	0.0	10.0

CMI/II Rating Scale

Indicate how true the following statements are about CMI/II by circling the number which best represents your answer.

The CMI/II system...

36. Produces more competent students than other methods of instruction					
1 STRONGLY DISAGREE	52.6	88.9	26.3	12.5	30.0
2 DISAGREE	21.1	0.0	63.2	50.0	45.0
3 AGREE	15.8	5.6	5.3	33.3	20.0
4 STRONGLY AGREE	10.5	5.6	5.3	4.2	5.0

	Responses				
	ADAMEM N = 19	RMSAN N = 18	AVAMEM N = 19	BEESAN N = 24	BEEMEM N = 20
37. Insures that students learn the concepts in each unit.					
1 STRONGLY DISAGREE	31.6	55.6	42.1	4.2	20.0
2 DISAGREE	47.4	33.3	31.6	54.2	45.0
3 AGREE	21.1	5.6	21.1	41.7	30.0
4 STRONGLY AGREE	0.0	5.6	5.3	0.0	5.0
38. Takes care of the course paperwork and record keeping efficiently					
1 STRONGLY DISAGREE	11.1	38.9	5.3	12.5	5.0
2 DISAGREE	27.8	27.8	10.5	37.5	20.0
3 AGREE	50.0	27.8	63.2	41.7	50.0
4 STRONGLY AGREE	11.1	5.6	21.1	8.3	25.0
39. Helps the training be more enjoyable.					
1 STRONGLY DISAGREE	50.0	77.8	15.8	8.3	40.0
2 DISAGREE	44.4	22.2	57.9	54.2	35.0
3 AGREE	5.6	0.0	21.1	33.3	25.0
4 STRONGLY AGREE	0.0	0.0	5.3	4.2	0.0
40. Frees the instructors to do better one-to-one teaching.					
1 STRONGLY DISAGREE	33.3	61.1	15.8	4.2	40.0
2 DISAGREE	27.8	38.9	15.8	50.0	15.0
3 AGREE	27.8	0.0	47.4	37.5	45.0
4 STRONGLY AGREE	11.1	0.0	21.1	8.3	0.0
41. Allows students to progress at their best rate.					
1 STRONGLY DISAGREE	27.8	44.4	10.5	4.2	15.0
2 DISAGREE	27.8	44.4	36.8	45.8	50.0
3 AGREE	38.9	11.1	31.6	37.5	35.0
4 STRONGLY AGREE	5.6	0.0	21.1	12.5	0.0
42. Presents the subject matter in a way which is easily understood.					
1 STRONGLY DISAGREE	38.9	50.0	15.8	4.2	20.0
2 DISAGREE	22.2	44.4	36.8	33.3	40.0
3 AGREE	38.9	5.6	36.8	54.2	40.0
4 STRONGLY AGREE	0.0	0.0	10.5	8.3	0.0

	Responses				
	ADAMS N 19	[illegible] N 18	AVAMS N 19	[illegible] N 24	[illegible] N 20
43. Removes pressure to complete with other students.					
1 STRONGLY DISAGREE	11.1	27.8	26.3	4.2	0.0
2 DISAGREE	50.0	44.4	31.6	25.0	40.0
3 AGREE	33.3	22.2	31.6	62.5	50.0
4 STRONGLY AGREE	5.6	5.6	10.5	8.3	10.0
44. Enable students to learn a lot of information in a short time.					
1 STRONGLY DISAGREE	33.3	50.0	15.8	4.2	5.0
2 DISAGREE	56.6	44.4	21.1	41.7	45.0
3 AGREE	11.1	0.0	57.9	45.8	50.0
4 STRONGLY AGREE	0.0	5.6	5.3	8.3	0.0
45. Meets the individual needs of each student.					
1 STRONGLY DISAGREE	38.9	55.6	26.3	12.5	25.0
2 DISAGREE	44.4	44.4	57.9	70.8	55.0
3 AGREE	16.7	0.0	10.5	16.7	20.0
4 STRONGLY AGREE	0.0	0.0	5.3	0.0	0.0
46. Provides a clear step-by-step procedure for learning the information.					
1 STRONGLY DISAGREE	11.1	33.3	10.5	4.2	10.0
2 DISAGREE	38.9	55.6	26.3	29.2	20.0
3 AGREE	44.4	11.1	57.9	66.7	70.0
4 STRONGLY AGREE	5.6	0.0	5.3	0.0	0.0
47. Places more emphasis on completing a module than on acquiring a skill or knowledge.					
1 STRONGLY DISAGREE	0.0	0.0	5.3	0.0	0.0
2 DISAGREE	11.1	0.0	15.8	20.8	20.0
3 AGREE	44.4	22.2	21.1	41.7	45.0
4 STRONGLY AGREE	44.4	77.8	57.9	37.5	35.0
48. Informs the student when he or she has successfully completed a unit.					
1 STRONGLY DISAGREE	5.6	0.0	0.0	0.0	5.0
2 DISAGREE	5.6	0.0	5.3	4.3	5.0
3 AGREE	72.2	77.8	63.2	69.2	75.0
4 STRONGLY AGREE	16.7	22.2	31.6	26.1	15.0

		Responses				
		ADAMEM N = 19	RMSAN N = 18	AVAMEM N = 19	BELSAN N = 24	BELMEM N = 20
49.	Gives useful feedback on how to correct mistakes made on a test.					
	1 STRONGLY DISAGREE	33.3	33.3	0.0	4.3	25.0
	2 DISAGREE	50.0	44.4	15.8	34.8	50.0
	3 AGREE	16.7	16.7	73.7	60.9	20.0
	4 STRONGLY AGREE	0.0	5.6	10.5	0.0	5.0
50.	Provides a detailed description of what is expected from students taking the training.					
	1 STRONGLY DISAGREE	15.8	33.3	5.3	8.3	15.0
	2 DISAGREE	52.6	44.4	21.1	25.0	35.0
	3 AGREE	26.3	22.2	63.2	66.7	45.0
	4 STRONGLY AGREE	5.3	0.0	10.5	0.0	5.0
51	Is more practical than high school training.					
	1 STRONGLY DISAGREE	42.1	61.1	10.5	0.0	20.0
	2 DISAGREE	31.6	27.8	36.8	37.5	30.0
	3 AGREE	21.1	11.1	47.4	54.2	35.0
	4 STRONGLY AGREE	5.3	0.0	5.3	8.3	15.0
52.	Produces the same learning outcomes as other systems, but produces them faster.					
	1 STRONGLY DISAGREE	47.4	66.7	26.3	8.3	35.0
	2 DISAGREE	36.8	27.8	57.9	54.2	20.0
	3 AGREE	15.8	0.0	15.8	37.5	45.0
	4 STRONGLY AGREE	0.0	5.6	0.0	0.0	0.0
53.	Demands more student effort than high school.					
	1 STRONGLY DISAGREE	15.8	27.8	0.0	0.0	0.0
	2 DISAGREE	36.8	27.8	15.8	12.5	5.0
	3 AGREE	36.8	33.3	36.8	62.5	50.0
	4 STRONGLY AGREE	10.5	11.1	47.4	25.0	45.0
54.	Is more motivating than high school.					
	1 STRONGLY DISAGREE	36.8	66.7	21.1	4.2	20.0
	2 DISAGREE	36.8	22.2	36.8	41.7	40.0
	3 AGREE	26.3	11.1	36.8	50.0	30.0
	4 STRONGLY AGREE	0.0	0.0	5.3	4.2	10.0

	ADAMEM N = 19	RMSAN N = 18	AVAMEM N = 19	BLESAN N = 24	PLEMEM N = 20
55. Contributes to students being better prepared when they get to the Fleet or shore assignment than other forms of instruction.					
1 STRONGLY DISAGREE	63.2	88.9	42.1	12.5	47.4
2 DISAGREE	26.3	11.	42.1	50.0	36.8
3 AGREE	10.5	0.0	10.5	29.2	15.8
4 STRONGLY AGREE	0.0	0.0	5.3	8.3	0.0
56. CMI courses only: loses a lot of time to the computer being "down."					
1 STRONGLY DISAGREE	5.3	0.0	0.0	0.0	0.0
2 DISAGREE	47.4	5.9	26.3	25.0	0.0
3 AGREE	31.6	17.6	26.3	31.3	25.0
4 STRONGLY AGREE	15.8	76.5	47.4	41.7	75.0

LEAST PREFERRED STUDENT OR CO-WORKER

This section is intended to identify your working style and the condition under which you are most effective. As you answer the items below, think of the one person, either in the past or present, with whom you had the most difficulty getting a job done. However, this individual is not necessarily the person you liked least.

On the scale below, describe this person by placing a check (✓) in the appropriate space. Think of the eight spaces as steps which range from one extreme to another. Before you place your check (✓) look at both ends of the line. Do not omit any items, and mark each item only once.

57.	Pleasant	8	7	6	5	4	3	2	1	Unpleasant
58.	Friendly	8	7	6	5	4	3	2	1	Unfriendly
59.	Rejecting	1	2	3	4	5	6	7	8	Accepting
60.	Tense	1	2	3	4	5	6	7	8	Relaxed
61.	Distant	1	2	3	4	5	6	7	8	Close
62.	Cold	1	2	3	4	5	6	7	8	Warm
63.	Supportive	8	7	6	5	4	3	2	1	Hostile
64.	Boring	1	2	3	4	5	6	7	8	Interesting
65.	Quarrelsome	1	2	3	4	5	6	7	8	Harmonious
66.	Gloomy	1	2	3	4	5	6	7	8	Cheerful
67.	Open	8	7	6	5	4	3	2	1	Guarded
68.	Backbiting	1	2	3	4	5	6	7	8	Loyal
69.	Untrustworthy	1	2	3	4	5	6	7	8	Trustworthy
70.	Considerate	8	7	6	5	4	3	2	1	Inconsiderate
71.	Nasty	1	2	3	4	5	6	7	8	Nice
72.	Agreeable	8	7	6	5	4	3	2	1	Disagreeable
73.	Insincere	1	2	3	4	5	6	7	8	Sincere
74.	Kind	8	7	6	5	4	3	2	1	Unkind

Responses

ADAMEM N = 52	RMSAN N = 34	AVAMEM N = 52	BEESAN N = 69	BEEMEM N = 48

STUDENT IDENTIFICATION QUESTIONS

Circle the number which best represents your answer.

75.	Have you had any prior experience with individualized instruction?					
	1 YES	70.0	44.1	74.5	49.3	87.2
	2 NO	30.0	55.9	25.5	50.7	12.8
76.	If yes, was it in: (check as many as apply)[a]					
	1 HIGH SCHOOL/TRAINING SCHOOL/COLLEGE					
	2 AFUN					
	3 OTHER NAVY COURSES					
77.	How long have you been in the Navy?					
	1 8 MONTHS OR LESS	89.1	88.2	37.3	68.1	89.1
	2 9 MONTHS - 1 YEAR	4.3	5.9	39.2	11.6	4.3
	3 1-3 YEARS	2.2	2.9	17.6	17.4	2.2
	4 4+ YEARS	4.3	2.9	5.9	2.9	4.3
78.	How old are you?					
	1 17-20	71.4	73.5	42.0	63.8	68.1
	2 21-25	20.4	11.8	40.0	30.4	23.4
	3 26 OR OLDER	8.2	14.7	18.0	5.8	8.5
79.	Are you:					
	1 MALE	96.0	72.7	92.0	94.2	91.5
	2 FEMALE	4.0	27.3	8.0	5.8	8.5

[a] Since subjects were able to give several responses to this item the percentages were omitted.

		Responses				
		ADAMEM N = 19	RMSAN N = 18	AVAMEM N = 19	BESAN N = 24	BEMEM N = 20
81.	Have you ever taught courses which were not individualized instruction or CMI?					
	1 NO	44.4	55.6	84.2	70.8	57.9
	2 YES, LECTURE/LOCK STEP IN NAVY COURSES	55.6	38.9	10.5	25.0	42.1
	3 YES, OUTSIDE OF NAVY (FOR EXAMPLE: PUBLIC SHCOOLS, COLLEGE TRAINING SCHOOLS).	0.0	5.6	5.3	4.2	0.0
	PLEASE STATE_____					
82.	What is your age group?					
	1 21-30	73.7	27.8	73.7	41.7	63.2
	2 31-40	21.1	61.1	26.3	50.0	36.8
	3 41-50	5.3	11.1	0.0	8.3	0.0
83.	Are you:					
	1 MALE	100.0	100.0	94.7	100.0	100.0
	2 FEMALE	0.0	0.0	5.3	0.0	0.0

[a] Since subjects were able to give several responses to this item, the percentages were omitted.

APPENDIX B

DISTRIBUTION OF RESPONSES TO INSTRUCTOR AND STUDENT RATING SCALES

Table B-1

Distribution of Responses to Instructor and Student Rating Scales

Item	% Responses[a]			
	Almost Never/Rarely	Seldom	Often	Almost Always/Frequently
Student Responses (N=225) to Instructor Rating Scales				
My instructors...				
Motivate my interest in the subject matter. (13)	13.0	28.5	39.9	18.6
Watch me too closely. (14)	24.8	57.9	13.4	3.9
Give recognition for good work. (15)	15.9	27.0	38.9	18.3
Try to make sure I understand what is being taught. (16)	5.9	20.2	36.4	37.5
Ignore me when I need help. (17)	72.7	20.9	4.7	1.6
Treat me as a responsible person. (18)	4.3	12.3	40.3	43.1
Treat me in a fair manner. (19)	1.2	8.3	36.2	54.3
Put too much pressure on me to finish assignments.[b] (20)	40.3	44.7	9.1	5.9
Encourage me to do my best. (21)	5.1	17.7	31.1	46.1
Are warm and friendly. (22)	6.4	20.0	36.8	36.8
Tell jokes and stories to entertain the class. (23)	36.4	34.8	20.6	8.3
Maintain too strict military discipline in the classroom.[b] (24)	22.1	50.2	18.6	9.1
Belittle me when I have a problem understanding the material.[b] (25)	57.4	29.7	8.8	4.0
Distract me while I am studying.[b] (26)	75.6	19.7	3.5	1.2
Are cold and distant toward me.[b] (27)	64.3	27.5	7.8	0.4
	Specific	General	No Directions	
Give directions that are: (28)	57.3	40.4	2.4	
Know more about their subject than my high school instructors did. (29)	3.6	11.3	29.1	55.9
Are more interesting than my high school instructors were. (30)	18.3	31.3	27.4	23.0
Are more concerned than my high school instructors were about me. (31)	15.5	34.1	28.6	21.8
As a student, I...				
Develop my own goals in the course. (32)	0.8	3.9	36.6	58.7
Organize my own work situation. (33)	1.2	4.7	40.8	53.3
Set my own time lines for completing work. (34)	6.7	11.4	38.0	43.9
Seek information from my instructors. (35)	6.3	31.0	36.9	25.9
Am willing to take responsibility for my work. (36)	0.4	0.4	24.3	74.9
Am capable of doing well in this course. (37)	0.4	1.2	38.7	59.7

Note. All respondents did not respond to all items.

[a]Totals do not always equal 100 percent due to rounding.

[b]For these items, a high response rating indicates a negative attitude.

Table B-1 (Continued)

Item	% Responses[a] Almost Never/Rarely	Seldom	Often	Almost Always/Frequently
Instructor Responses (N-100) to Student Rating Scales				
My students...				
Work hard to understand the subject matter. (13)	4.0	25.0	59.0	12.0
Wait until they are "lost" in the material before coming to me for help.[b] (14)	4.0	34.0	41.0	21.0
Ask me how well they are doing in the course. (15)	5.0	21.0	45.0	29.0
Need constant pressure to finish assignments on time.[b] (16)	7.1	38.4	45.5	9.1
Try to get to know me as a friend. (17)	20.0	45.0	26.0	9.0
Ask unnecessary questions about the subject matter.[b] (18)	25.0	47.0	25.0	3.0
Are self-motivated and responsible. (19)	12.0	34.0	48.0	6.0
Discuss non-course-related concerns with me. (20)	5.0	41.0	49.0	5.0
Waste time if not closely watched.[b] (21)	1.0	41.0	46.0	12.0
Require disciplinary action.[b] (22)	16.0	48.0	34.0	2.0
Accept my suggestions and criticisms well. (23)	1.0	18.2	51.5	29.3
Avoid coming to me for help.[b] (24)	37.0	47.0	15.0	1.0
Try to finish assignments ahead of time. (25)	2.0	19.2	59.6	19.2
Appreciate my encouragement. (26)	3.0	8.0	43.0	46.0
Are cold and distant toward me.[b] (27)	46.0	47.0	5.0	2.0
Work well together on problems.[c] (28)	8.0	12.0	25.0	5.0
As an instructor, I...				
Let students organize their own work situation. (29)	25.0	28.0	28.0	19.0
Provide support and encouragement to students. (31)	0.0	1.0	40.0	59.0
Have support and encouragement from my supervisors. (35)	3.0	9.1	48.5	39.4
Initiate talks with students about their progress generally. (32)	15.0[d]	13.0	44.0	28.0
Organize my own work situation. (34)	15.0[e]	12.0	34.0	39.0

	That are General	That are Specific	Neither
Provide directions to students (30)	33.0	62.0	5.0

	No Change	Yes, for the worse	Yes, for the better
Feel that the caliber of students is changing. (33)	22.0	63.0	15.0

Note. All respondents did not respond to all items.

[a]Totals do not always equal 100 percent due to rounding.

[b]For these items, a high response rating indicates a negative attitude.

[c]On this item, 50 percent of the instructors selected an additional response alternative: "Not appropiate to work together for the course."

[d]Includes "rarely, not necessary" (7.0); "rarely, they come to see me "(5.0), and "rarely, computer keeps them informed" (0.3).

[e]Includes "rarely" (5.0) and "rarely, don't need to, it's done for me" (10.0).